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**METHODS FOR THE FORMATION OF HYDROGELS  
USING THIOSULFONATE COMPOSITIONS AND USES THEREOF**

**ABSTRACT**

The present invention provides both crosslinked polymer compositions capable of forming hydrogels upon exposure to an aqueous environment and thiosulfonate hydrogel-forming components. The thiosulfonate hydrogel-forming components of the invention are preferably multi-arm thiosulfonate polymer derivatives that form a crosslinked polymer composition when exposed to a base without requiring the presence of a second cross-linking reagent, redox catalyst, or radiation. Methods for forming hydrogel compositions, as well as methods for using the hydrogels, are also provided.